

SECTION 07605

METAL ROOFING

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

- A. Assure compliance with provisions of following codes and standards:
 - 1. AISI "Specification for Design of Cold Formed Steel Structural Members".
 - 2. Steel Deck Institute (SDI), "Steel Roof Decking Design Manual".
 - 3. AWS "Sheet Steel in Structures, Specification for Welding" AWS D1.3.
 - 4. International Conference of Building Officials (ICBO).
 - 5. SMACNA Architectural Sheet Metal Manual, 4th Edition.
- B. Wind uplift resistance: Class 90 wind-uplift resistance in accordance with UL 580, or FM 1-90 classification, or designed for a wind load of 110 mph including uplift testing in accordance with ASTM-E1592.

1.2 SUBMITTALS

- A. Shop drawings:
 - 1. Complete layout indicating types of roofing, anchorage, supplementary framing, cut openings, accessories, insulation and deck thicknesses.
- B. Samples:
 - 1. Color samples of finishes.
- C. Contract closeout information:
 - 1. Warranty.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Protect materials from rusting, dirt or damage.

1.4 JOB CONDITIONS

- A. Do not overload supporting members.
- B. Until entire assembly is complete, structural elements may not be stable or capable of supporting code or stated design loads.

1.5 WARRANTY

- A. Provide 20-year warranty signed jointly by roofing materials manufacturer, installer and Contractor.
- B. Warrant watertightness of roof and associated flashing for a period indicated.
- C. Warrant color integrity of finish for same period.

PART 2 - PRODUCTS

2.1 METAL ROOFING

- A. Acceptable manufacturers:
 - 1. Metal roofing material:
 - a. Base:
 - 1) Petersen Aluminum.
 - b. Optional:

- 1) Vincent Metals.
 - 2) Berridge Manufacturing.
 2. Galvanizing repair paint:
 - a. Base:
 - 1) Tnemec.
 - b. Optional:
 - 1) ZRC Products.
 3. Other manufacturers desiring approval comply with Document 00440.
- B. Metal roofing:
 1. Sheet steel except gutters and downspouts: Minimum 24 GA , galvanized and shop finished.
 2. Gutters and downspouts: Minimum 16 GA , galvanized, and shop finished to match roofing.
 3. ASTM-A653/A653M, Grade-A, with ASTM-A653/A653M G90 zinc coating.
 4. Finish coating:
 - a. Exposed and partially exposed surfaces: Minimum 1 mil fluorocarbon coating, 70 percent Kynar/Hylar.
 - b. Fully concealed surfaces: Wash coat.
 5. Peterson Aluminum, Redi-Roof Standing Seam, 12 IN spacing, 1-9/16 IN high standing seams.

2.2 OTHER MATERIALS

- A. Nails: Large head galvanized roofing nails.
- B. Screws:
 1. Stitch Tek's, 12-14 x 3/4 hex washer head with pilot point galvanized or cadmium plated.
 2. Color to match roofing.
- C. Steel shapes, miscellaneous: ASTM-A36/A36M galvanized.
- D. Galvanizing for metal accessories: ASTM-A653/A653M G90.
- E. Galvanizing repair paint.
- F. Metal closure strips:
 1. ASTM-A653/A653M G90 galvanized sheet steel.
 2. Minimum 26 GA before coating.
 3. Finished to match roofing.
- G. Plywood substrate and wood blocking:
 1. Combination preservative and fire treated exterior grade wood and plywood.
 2. Minimum 5/8 IN thick plywood for roofing substrate.
 3. See Section 06000.
- H. Self-sealing membrane: Minimum 40 mils thick self-adhering polymer-modified bituminous sheet underlayment complying with ASTM-D1970. Provide primer where recommended by underlayment manufacturer for substrate.
- I. Insulation:
 1. Polyisocyanurate composite with top layer of 7/16 IN oriented strand structural board.
 2. See Section 07223.
 3. Sized to fit tightly within support framing members.

2.3 FABRICATION

- A. Form with flush, telescoped or nested 2 IN end and side laps.
- B. Form metal closure strips to configuration required to provide tight fitting closures at open ends and sides.

- C. Fabricate roofing in accordance with following SMACNA Figures.
 - 1. Perform fabrication per referenced figure designs, in SMACNA Architectural Sheet Metal Manual.
 - 2. Design: Standing seam per SMACNA Figures 6-4, 6-5 and 6-6. 122.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine areas and conditions under which roof decking units are to be installed for conditions detrimental to proper and timely completion of work.
- B. Correct unsatisfactory conditions.
- C. Start of installation constitutes acceptance of responsibility for correct installation and performance.

3.2 INSTALLATION - GENERAL

- A. Install roofing and accessories as indicated.
- B. Do not start placement of roofing until supporting members, insulation specified in Section 07210 and plywood substrate are installed complete.
- C. Place each panel on plywood substrate, adjust to final position, accurately align with ends bearing on supporting members.
 - 1. Lap units at ends minimum 2 IN.
 - 2. Do not stretch or contract side lap interlocks.
 - 3. Place panels flat and square and secure to framing without warp or excessive deflection.
- D. Remove and replace panels:
 - 1. Structurally weak.
 - 2. Unsound.
 - 3. With burn holes.
 - 4. Those the Government declares defective.
- E. Cut and fit panels and accessories around other work projecting through or adjacent to roofing.
 - 1. Make cutting and fitting neat, square and trim.
 - 2. Neatly and accurately reinforce openings except:
 - a. Circular openings less than 6 IN diameter.
 - b. Rectangular openings having no side dimension greater than 6 IN.
 - 3. Reinforce openings between 6 and 12 IN with 20 GA steel sheet 12 IN greater in each dimension than opening.
 - 4. Place sheet around opening and weld to top surface of deck at each corner and each side midway between each corner.
- F. Install metal closure strips as required.
 - 1. Provide where rib openings in top surface of roof decking occur adjacent to edge and openings.
 - 2. Securely fasten closure strips into position.
- G. Install metal closure strips at open uncovered ends and edges of roofing, and in voids between roofing and other construction.
 - 1. Fasten into position to provide a complete decking installation.

3.3 INSTALLATION OF METAL ROOFING

- A. Assure that metal decking is fastened to supporting frame and side laps as follows:
 - 1. At supports and at ends:
 - a. For 30 and 36 IN wide panels: Minimum 4 screws per deck unit.

2. At perimeter supports 12 IN OC.
 3. At side laps 24 IN OC.
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- B. Install roof insulation as specified in Section 07223.
 - C. Cover roof insulation with plywood substrate, secured to oriented strand structural board layer of composite roof insulation by screws spaced 12 IN OC maximum both ways, level and with nominal 1/16 IN joints.
 - D. Prime substrate if recommended by underlayment manufacturer, and install self-sealing membrane continuous over plywood substrate, lapped minimum 6 IN to weather.
 - E. Secure self-sealing membrane as recommended by underlayment manufacturer.
 - F. If metal roofing is not installed immediately after self-sealing membrane, provide temporary weather protection.
 - G. Remove and replace plywood substrate and self-sealing membrane in areas where warping exceeding 1:50 occurs.
 - H. Install cleats and battens required.
 - I. Install metal roofing in accordance with referenced figures.
 - J. Perform sealant work required to make installation watertight.

3.4 CLEAN AND TOUCH-UP

- A. Clean and retouch scarred areas, welds and rust spots.
- B. Touch-up damaged galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
- C. Touch-up fluorocarbon coated surfaces with material used in shop, as recommended by metal roofing material manufacturer.

END OF SECTION